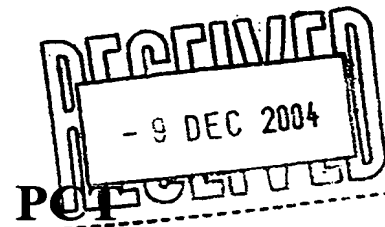


# PATENT COOPERATION TREATY



From the:  
INTERNATIONAL SEARCHING AUTHORITY

To:

Viering, Jentschura & Partner  
P.O Box 1088  
Rochor Road Post Office  
Rochor Road, Singapore 911833

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing (day/month/year) - 1 DEC 2004

Applicant's or agent's file reference  
P100653

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/SG2004/000352

International filing date (day/month/year)  
25 October 2004

Priority date (day/month/year)  
29 October 2003

International Patent Classification (IPC) or both national classification and IPC

Int. CL. <sup>7</sup> C12Q 1/00, 1/18, 1/26, 1/54, G01N 33/543, 27/26

Applicant

AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH et al

**1. This opinion contains indications relating to the following items:**

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

Name and mailing address of the IPEA/AU  
AUSTRALIAN PATENT OFFICE  
PO BOX 200, WODEN ACT 2606, AUSTRALIA  
E-mail address: pct@ipaaustralia.gov.au  
Facsimile No. (02) 6285 3929

Authorized Officer

**ALBERT S. J. YONG**  
Telephone No. (02) 6283 2160

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/SG2004/000352

**Box No. I**      **Basis of the opinion**

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/SG2004/000352

**Box No. V** Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	YES
	Claims 1-45	NO
Inventive step (IS)	Claims	YES
	Claims 1-45	NO
Industrial applicability (IA)	Claims 1-45	YES
	Claims	NO

2. Citations and explanations:

**CITATIONS**

D1. US 5922183

D2. US 5922537

D3. BU, Anal. Chem. Vol. 68, No.22

D4. BU, Anal. Chem. Vol. 70, No. 20

D5. US 4341881

**NOVELTY**

Claims 1-24: The claimed invention generally relates to a sensor membrane comprising nanoparticles of at least one inorganic oxide, an oxidoreductase and an electrochemical activator. These features are disclosed in each of citations D1 and D2. Hence, the claims are not novel in the light of these citations.

Claims 25-45: These claims relate to a redox polymer obtained by polymerising a ferrocene monomer with an acrylic acid derivative. Citations D3-D5 each discloses a copolymer obtained from vinylferrocene and an acrylic derivative. Hence, the claims are not novel.

**INVENTIVE STEP**

Claims 1-45: These claims lack an inventive step for reasons stated above.

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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

**PCT/SG2004/000352**

**Box No. VII      Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

1. Claims 25-45 are repeated in related application PCT/SG 2004/000351.

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The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below:

**IPEA/ Australian Patent Office**

# PCT

## CHAPTER II

### DEMAND

under Article 31 of the Patent Cooperation Treaty:  
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty.

For International Preliminary Examining Authority use only	
Identification of IPEA	Date of receipt of DEMAND
<b>Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION</b>	
Applicant's or agent's file reference <b>P100653</b>	
International application No. <b>PCT/SG2004/000352</b>	International filing date (day/month/year) <b>25/10/2004</b>
(Earliest) Priority date (day/month/year) <b>29/10/2003</b>	
Title of invention <b>Biosensor</b>	
<b>Box No. II APPLICANT(S)</b>	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
<b>Name: Agency for Science, Technology and Research</b> <b>Address: 20 Biopolis Way #07-01</b> <b>Centros</b> <b>Singapore 138668</b>	
Telephone No.	
Facsimile No.	
Teleprinter No.	
Applicant's registration No. with the Office	
State (that is, country) of nationality: <b>Singapore</b>	State (that is, country) of residence: <b>Singapore</b>
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
<b>Name: GAO Zhiqiang</b> <b>Address: Block 685B Choa Chu Kang Cresscent</b> <b>#14-298</b> <b>Singapore 682685</b>	
State (that is, country) of nationality: <b>Singapore</b>	State (that is, country) of residence: <b>Singapore</b>
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
<b>Name: XU Guolin</b> <b>Address: Block 436 Woodlands Street 41</b> <b>#12-398</b> <b>Singapore 740436</b>	
State (that is, country) of nationality: <b>P.R. China</b>	State (that is, country) of residence: <b>Singapore</b>
<input checked="" type="checkbox"/> Further applicants are indicated on a continuation sheet.	

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**Continuation of Box No. II APPLICANT(S)***If none of the following sub-boxes is used, this sheet should not be included in the demand.*Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

Name: YING Yi-Ru Jackie  
 Address: 31 Toh Avenue  
 Singapore 508056

State *(that is, country)* of nationality:  
 United States of America

State *(that is, country)* of residence:  
 Singapore

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

Name: MOHAMED ARSHAD Mohamed Shariff  
 Address: Block 210 Pasir Ris Street 21  
 #10-324  
 Singapore 510210

State *(that is, country)* of nationality:  
 Singapore

State *(that is, country)* of residence:  
 Singapore

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

Name: XIE Fang  
 Address: 50 West Coast Crescent  
 #05-05  
 Singapore 128035

State *(that is, country)* of nationality:  
 P.R. China

State *(that is, country)* of residence:  
 Singapore

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

State *(that is, country)* of nationality:

State *(that is, country)* of residence:

☐ Further applicants are indicated on another continuation sheet.

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**Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE**The following person is ☒ agent ☐ common representativeand ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*Dr. SCHIWECK Wolfram  
Viering, Jentschura & Partner  
P.O. Box 1088  
Rochor Post Office, Rochor Road  
Singapore 911833

Telephone No.

(65) 6334 9411

Facsimile No.

(65) 6238 4402

Teleprinter No.

Agent's registration No. with the Office

SGPA/0301/0070

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.**Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION****Statement concerning amendments:\***

1. The applicant wishes the international preliminary examination to start on the basis of:

☐ the international application as originally filedthe description ☒ as originally filed☐ as amended under Article 34the claims ☐ as originally filed☐ as amended under Article 19 (together with any accompanying statement)☒ as amended under Article 34the drawings ☒ as originally filed☐ as amended under Article 342. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.3. ☐ Where the IPEA wishes to start the international preliminary examination at the same time as the international search in accordance with Rule 69.1(b), the applicant requests the IPEA to postpone the start of the international preliminary examination until the expiration of the applicable time limit under Rule 69.1(d).4. ☒ The applicant expressly wishes the international preliminary examination to start earlier than at the expiration of the applicable time limit under Rule 54bis.1(a).

\* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English .....

☒ which is the language in which the international application was filed.☐ which is the language of a translation furnished for the purposes of international search.☐ which is the language of publication of the international application.☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.**Box No. V ELECTION OF STATES**

The filing of this demand constitutes the election of all Contracting States which are designated and are bound by Chapter II of the PCT.

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**Box No. VI CHECK LIST**

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

- |  |   |              |
|--|---|--------------|
| 1. translation of international application                              | : | _____ sheets |
| 2. amendments under Article 34   | : | 7 sheets     |
| 3. copy (or, where required, translation) of amendments under Article 19 | : | _____ sheets |
| 4. copy (or, where required, translation) of statement under Article 19  | : | _____ sheets |
| 5. letter  | : | 4 sheets     |
| 6. other ( <i>specify</i> ) item 2 - mark-up copy                        | : | 8 sheets     |

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received	not received
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<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

The demand is also accompanied by the item(s) marked below:

- |  |   |
|--|---|
| 1. <input checked="" type="checkbox"/> fee calculation sheet                             | 5. <input type="checkbox"/> statement explaining lack of signature                  |
| 2. <input type="checkbox"/> original separate power of attorney                          | 6. <input type="checkbox"/> sequence listing in electronic form                     |
| 3. <input type="checkbox"/> original general power of attorney                           | 7. <input type="checkbox"/> tables in electronic form related to a sequence listing |
| 4. <input type="checkbox"/> copy of general power of attorney; reference number, if any: | 8. <input type="checkbox"/> other ( <i>specify</i> ):                               |

**Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE**

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).

Singapore, 25 August 2005



Dr. Wolfram Schiweck (SGPA/0301/0070)  
Viering, Jentschura & Partner, Singapore Office

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1. Date of actual receipt of DEMAND:

2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):

3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply.
- ☐ The applicant has been informed accordingly.
4. ☐ The date of receipt of the demand is WITHIN the time limit of 19 months from the priority date as extended by virtue of Rule 80.5.
5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

6. ☐ The date of receipt of the demand is AFTER the expiration of the time limit under Rule 54bis.1(a) and item 7 or 8, below, does not apply.
7. ☐ The date of receipt of the demand is WITHIN the time limit under Rule 54bis.1(a) as extended by virtue of Rule 80.5.
8. ☐ Although the date of receipt of the demand is after the expiration of the time limit under Rule 54bis.1(a), the delay in arrival is EXCUSED pursuant to Rule 82.

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Demand received from IPEA on: